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IMPORTANT FOREST INSECT OUTBREAKS
INTERMOUNTAIN REGION
1959

INSECT: Mountain Pine Beetle (Dendroctonus monticolae Hopk.).

HOST: Lodgepole pine, western pine, ponderosa pine.

Lodgepole pine stands scattered throughout the range of the type in U.S. Forest Service Region 4* are suffering considerable damage from epidemic infestations of mountain pine beetle.

In Idaho, mountain pine beetle infestations occur on the Sawtooth and Targhee National Forests and on State and private lands near Kilgore. In Wyoming, epidemic populations are found on the Teton National Forest and in Grand Teton National Park. The extensive outbreak on the Wasatch National Forest continues as does a small but threatening infestation on the Ashley National Forest in Utah.

While control efforts have been successful in reducing populations in treated areas, the appearance of new centers of infestation and expansion of older centers indicates the serious nature of the present mountain pine beetle problem in the lodgepole forests in Region 4.

An epidemic of mountain pine beetle in second-growth ponderosa pine has been present in the Crystal Bay area at the north end of Lake Tahoe in Nevada since 1949. A cooperative private, State, and Federal control program was undertaken in 1958 and more than 6,000 trees were logged or burned. No control was carried on in 1959 and surveys revealed that populations built up to a point where there are now approximately 8,000 infested trees.

Another infestation of mountain pine beetle in second-growth ponderosa pine was discovered in and around Atlanta, Idaho, on the Boise National Forest in 1958. During the spring of 1959, 1,397 infested trees were cut, decked, and burned. A survey this fall revealed that there are possibly 500 to 800 infested trees present in the area.

Stands of old-growth western white pine in Region 1* are chronically infested with mountain pine beetle, Dendroctonus monticolae Hopk. These infestations fluctuate from year to year but the average annual loss ranges from 1 to 5 percent of the stand. Stands in parts of the Clearwater National Forest

*U. S. Forest Service Region 1 includes Montana, northern Idaho, a portion of northeastern Washington, and the northwestern corner of South Dakota. Department of Interior lands within the bounds and Yellowstone Park are included in surveys.

*U. S. Forest Service Region 4 includes Utah, Nevada, southern Idaho, western Wyoming, and very limited forested areas in eastern California and western Colorado. Department of Interior lands within the bounds are included in surveys.

were again infested in 1959 by the beetle, and rate of tree mortality was approximately 2-1/2 percent of the trees. Elsewhere in Idaho and western Montana lighter infestations were active in western white pine stands.

Mountain pine beetle activity in lodgepole pine appeared to be at a low level in the region during 1959.

INSECT: Engelmann Spruce Beetle (Dendroctonus engelmanni Hopk.).

HOST: Engelmann spruce

In 1958 four new outbreaks were discovered in rather widespread locations. They were the infestation on the Wasatch, Ashley, and Uinta National Forests; the Mt. Peale infestation near Moab, Utah; Fisher Creek on the Payette National Forest; and the Aquarius Plateau area on the Dixie National Forest. Altogether, they involved over 80,000 infested trees with each area considered highly epidemic. Present conditions show that although epidemic tendencies remain, the number of infested trees was greatly reduced by vigorous and efficient control programs carried on by the land managers. It does not appear that biotic factors were responsible for any significant brood reductions, and climate did not adversely effect brood populations last winter.

The Engelmann spruce beetle is still active in some of the spruce stands in northern Idaho and western Montana. While there are indications of decreased beetle activity in most of the previously infested drainages, an outbreak in the Kootenai National Forest increased to an alarming extent in 1959. Infestations that persist are nearly all associated with logging areas and are remnants of the outbreak that originated in 1952.

INSECT: Douglas-fir Beetle (Dendroctonus pseudotsugae (Hopk.))

Host: Douglas-fir

Reports during 1958 indicated an upward trend in populations of this beetle throughout Region 4. In 1959 the increasing trend was particularly evident in southern Idaho stands of Douglas-fir. In western Wyoming the upward trend was less noticeable. The outbreak on the Dixie National Forest in southern Utah continued at a high level.

Several reports of Douglas-fir beetle activity in Forest Service Region 1 were received during 1959. Logging of infested timber in the Swan River valley was started during the year. Some small areas of activity occurred in the region but other than in the Swan River area there were no large outbreaks such as have occurred in past years.

INSECT: Black Hills Beetle (Dendroctonus ponderosae Hopk.)

HOST: Ponderosa pine

Black Hills beetle infestations on the Dixie National Forest and Bryce Canyon National Park in southern Utah have been significantly reduced by direct control. During 1958 it was reported that a downward trend was

observed and it continued in 1959. Severe drought conditions were experienced this year and in spite of the downward trend it is felt that without continued control effort remaining infestations, estimated at 2,200 trees in ten units on the Forest and 200 trees in the Park, could reverse this trend if drought conditions persist.

INSECT: Western Pine Beetle (Dendroctonus brevicomis Lec.)

HOST: Ponderosa pine

In Forest Service Region 1 the western pine beetle appears to be more active in 1959 than observed during the past few years. Several groups of attacked ponderosa pine were reported, mostly on the Lolo National Forest, Montana. In several instances Ips species were associated with the attack of the pine beetle in small diameter trees.

INSECT: Fir Engravers

HOST: True firs

Ground and aerial detection reports indicate that fir engravers are continuing at a high level throughout nearly all of the true fir stands.

INSECT: Ips (Ips spp.)

HOST: Ponderosa pine

In Region 1, a number of outbreaks of secondary bark beetles, mostly Ips spp., were reported during the year. Many of these infestations were determined as those of Ips oregonis (Lichh.) It appears that there is a definite increasing trend.

INSECT: Spruce Budworm (Choristoneura fumiferana (Clem.))

HOST: Douglas-fir, true firs, Engelmann spruce.

In southern Idaho from 1952 to 1957 infestations increased both areawise and in intensity and during this period 2,029,747 acres of Douglas-fir and true firs were aerially sprayed to control this insect. In 1958 damage levels increased in severity only in limited areas. No control project was recommended in 1958 because most of the budworm infestations then unsprayed were relatively new, tree killing was not expected, and the significance of existing spider mite infestations had to be determined.

Acreage infested in 1959 totalled 499,000 acres on the Payette, Salmon, Sawtooth, and Targhee National Forests. Of this total only 59,000 acres were classified as heavily infested.

The general budworm picture in southern Idaho in 1959 would seem to be one of relative stability at a population damage level that is less serious than it has been during the past few years. There are a few exceptions, particularly on the Targhee National Forest, where if high populations

persist they could cause loss of timber but this is not expected in 1960 due to the general tree vigor and a predicted general decline or leveling off of the larval populations. In each of these exceptional cases only a minor portion of the total acreage is involved.

In Region 1, during 1959, few changes were noted in epidemics that have plagued the Douglas-fir forests of central Montana for over 10 years. Most of the available Douglas-fir type east of the Continental Divide is infested to some degree, and much of the acreage sprayed in 1953 and from 1955 through 1957 to control the budworm is again repopulated to varying degrees. It is estimated that there are 3.4 million acres presently infested. Ground surveys in Montana showed an average of 36 percent needle defoliation in 1959 compared with 48 and 49 percent in the past two years.

INSECT: Pine-feeding Budworm (Choristoneura lambertianae (Busck.))

HOST: Lodgepole pine, white-bark pine

During the past few years several infestations have been observed in lodgepole and white-bark pine stands in Montana and in lodgepole pine stands in Yellowstone National Park, Wyoming. These outbreaks are associated with spruce budworm infestations in adjacent or intermixed Douglas-fir stands. In 1959 another infestation of the pine-feeding budworm was noted near Helena, Montana. In this instance the host tree species was ponderosa pine.

INSECT: Lodgepole Pine Needle Miner (Recurvaria milleri Busck)

HOST: Lodgepole pine

The first record of this insect in Region 4 was an infestation on the Cassia Division of the Minidoka (now Sawtooth) National Forest in Idaho during 1938 which subsided around 1943. The next report of the needle miner was in 1949 when an infestation built up over most of the lodgepole stands on the Sawtooth, Targhee, and Caribou National Forests. This outbreak died out in 1953.

Present infestations were detected in the fall of 1958. The main infestations are on the Cassia Division of the Sawtooth National Forest and near Warm River in the Big Falls of Henrys Fork and the Snake River on the Targhee National Forest. Additional surveys showed a number of smaller infestations on the Bridger, Caribou, and Targhee National Forests.

The lodgepole needle miner outbreaks have increased in area and intensity now covering about 104,600 acres. Evaluations indicate that in all probability this insect's activity will continue to increase for the next few years.

INSECT: Pandora Moth (Coloradia pandora Blake)

HOST: Lodgepole pine

In mid-June 1959 an outbreak of Pandora moth in lodgepole pine was discovered on the north slopes of the Uinta Mountains on the Ashley National Forest in Region 4. The infestation covers about 15,000 acres with about 300 acres severely defoliated, and in this area about 1 percent of the trees were completely stripped of foliage. The moths are now in the pupal stage, and larvae will only be partially grown by the end of the 1960 season so only a limited amount of defoliation is expected.

INSECT: Aspen Leaf-miner (Phyllocnistis populiella Chamb.)

HOST: Aspen

The aspen leaf miner has been a serious defoliator within western Wyoming and southeastern Idaho in Forest Service Region 4 for the past 10 to 12 years. This infestation covers nearly all of the aspen on the Bridger, Teton, Targhee, and Caribou National Forests and Grand Teton National Park. As a result of repeated defoliation by the mining larvae, tree mortality has occurred in patches. A majority of the infested aspen produces only stunted foliage and shows signs that tree mortality may continue during succeeding years.

INSECT: Pine Butterfly (Neophasia menapia Feld.)

HOST: Ponderosa pine

This insect appeared more numerous this year in northern Idaho and western Montana, Region 1. From 6 to 8 butterflies per tree top were counted in ponderosa pine stands in the Nezperce National Forest. Similar conditions were observed around the tops of western white pine trees in the Clearwater National Forest. Continued surveillance is planned.

INSECT: Tussock Moths (Hemerocampa spp.)

HOST: Douglas-fir, white fir, and range browse plants

Several outbreaks of tussock moth have occurred in Region 4 during the past 5 years. It appears that more than one species is involved but determinations have not been received from specialists. A Douglas-fir tussock moth outbreak began in 1956 in Owyhee County, Idaho, and increased sharply in 1957 but was virtually eliminated in 1958, primarily as a result of a virus disease. Only one small drainage remained infested at a low population level in 1959.

An infestation of tussock moth on bitterbrush was first reported in June, 1958 near Carson City, Nevada and has since been under observation. Part of the area has been used for experimental tests with virus material obtained from Douglas-fir tussock moth in Idaho.

Approximately 5,000 to 10,000 acres of ceanothus, willow, bitterbrush, nine-bark, ribes, and rosebrush were infested by a tussock moth during the summer of 1959 at Idaho City, Idaho. The occurrence of a virus disease during this first year of noticeable infestation was unusual and practically eliminated the entire infestation. No egg masses were found during the fall evaluation and all brush species, except willow, were refooliating.

An unusual situation was noted this year by Dr. Mielke, forest pathologist. In July, on the Targhee National Forest in Idaho, a tussock moth was found feeding on dwarfmistletoe on lodgepole pine. The infestation was located near the Buffalo Ranger Station not far from Island Park Reservoir. When entomologists examined the infestation in July larvae were pupating. There was no evidence of feeding on lodgepole foliage. Dr. Mielke stated that the feeding that occurred could prevent seed formation for about two years. The species of tussock moth has not been determined.

Late last fall an epidemic infestation of tussock moth, covering about 5,000 gross acres of white fir (Abies concolor) was discovered on the east side of Wheeler Peak near Ely, Nevada. The insect has been active in the area for a number of years. Extensive tree mortality has occurred in the upper portion of the timber type around rocky ledges. The infestation is now moving down into better timber in the creek bottoms with an average defoliation of 90 percent of the current year's growth. Some trees in creek bottoms have been heavily defoliated for the past couple of years. An upward trend is indicated.

INSECT: Sawflies

HOST: Lodgepole pine, pinyon pine, Douglas-fir

Five sawfly infestations were present in Region 4 this year: one in lodgepole pine, another in pinyon pine, and three in Douglas-fir. At least three species of sawflies are involved in these infestations. Within lodgepole pine stands the species is probably Neodiprion burkei (Midd.); on larch a Pristiphora n. sp.; while on Douglas-fir the sawfly falls in the Neodiprion abietis complex. The sawfly on pinyon pine has not as yet been identified.

Sawfly infestations in Douglas-fir occur throughout the South Fork of the Boise River and in Warm Springs Creek drainages on the Sawtooth National Forest and with Douglas-fir stands on private, State, and Bureau of Land Management land in Owyhee County. These infestations have remained at a high endemic level with the exception of approximately 300 acres that were heavily defoliated within Deer Creek adjacent to drainages on the Sawtooth National Forest.

Approximately 75 square miles of pinyon pine near Pioche, Nevada are currently infested with epidemic populations of sawfly. In the vicinity of Hulse Canyon 90 percent of the pinyon pine has been killed. In the remainder of the infested area defoliation ranged from 10 percent in the larger trees to 100 percent in smaller trees. While some evidence of natural control factors was revealed by examination of the pupae, it does not appear that these factors are sufficient to reduce next year's population greatly.

The species is rather important in this area because pinyon pine has become a very important Christmas tree.

Several species of sawflies show an upward trend in Region 1. At least 6 different species have been collected. Most of these are unidentified as yet, and it is believed that several undescribed specimens are included in the collection.

An outbreak of sawfly, Neodiprion sp., in lodgepole and ponderosa pine in and adjacent to the Lewis and Clark National Forest, Montana, severely defoliated approximately 7,000 acres of overstory trees. An evaluation of this outbreak indicates the possibility of a downward trend.

Pristiphora erichsonii (Hartig) was detected in 1958 near Missoula, Montana, for the first time since 1944. Several large patches of western larch in Blackfoot River drainage have been defoliated but no tree mortality has resulted.

In 1958 two new species of Pristiphora were reared from western larch near Sandpoint, Idaho. A major difference in these insects is that pupation takes place on the foliage in contrast to P. erichsonii which pupates in the duff.

INSECT: Larch Casebearer (Coleophora laricella (Hbn.))

HOST: Larch

In 1959 this insect was found in small numbers northwest as far as Colville, Washington, north to Bonners Ferry, Idaho, east to Lookout Pass marking the Idaho-Montana boundary, and south to Bovill, Idaho. The total area included within these limits is 8,000 square miles, or twice the area of infestation that was found last year. In 1958 the total area was erroneously reported as 110 square miles; the figure should have been 4,000 square miles.

In contrast to the over-all rate of spread of the larch casebearer, the area of heavy infestation remained about the same in 1959 as it was in 1958. Visible defoliation extends over 15,000 to 20,000 acres in the vicinity of St. Maries, Idaho.

INSECT: Alder Flea Beetle (Altica ambiens (Lec))

HOST: Alder, willow

Widespread defoliation of alder and willow through northern Idaho and northwestern Montana was caused by this beetle. The foliage on thousands of acres of streamside cover was skeletonized.

INSECT: Mealybugs

HOST: True firs, lodgepole pine, Engelmann spruce, white bark pine

An infestation of mealybugs in true firs was reported in 1958 north of Hazard Lake, on the Payette National Forest. Evidence indicated that a large population had been feeding throughout the growing season. Affected trees were alpine fir, lodgepole pine, Engelmann spruce, and white bark pine. Deposits of black sooty mold were characteristic throughout the infested area, but underneath this mold the needles were alive and green but showed scattered feeding injury. Occasional twig killing was noted but the damage was light. In 1959 the infestation at Hazard Lake had dropped out completely but some 5 to 10 air miles west around Elk Lake a similar but less intense outbreak was discovered.

Mealybugs of the genus Puto infesting Engelmann spruce stands in southern Utah are still very active. The infestation covers about 60,000 acres in three separate locations: Thousand Lake Mountain, near Loa, Utah on the Fishlake National Forest; Griffin Springs on the Aquarius Plateau, and Barney Top on the Dixie National Forest. There is considerable tree deformity, limb killing, and reduced vigor in areas where the pest has been active for several years. In the older infestation on Thousand Lake Mountain some mortality to reproduction is occurring. The infestations continue at epidemic levels.

INSECT: Spruce Spider Mite (Oligonychus ununguis (Jacobi))

HOST: Douglas-fir

Populations were observed during 1959 at scattered locations on the Deer-lodge, Lewis and Clark, Helena, and Gallatin National Forests in Region 1 and in Yellowstone National Park. These mites were remnants of a fairly heavy spider population that occurred in these areas in 1957 and 1958.

Although populations were at a low level, damage caused in 1957 and 1958 was still visible on most Montana Douglas-fir forests east of the Continental Divide. Damage was restricted to those forest areas sprayed with DDT for spruce budworm control in 1956 and 1957.

INSECT: Pine Needle Scale (Phenacapsis pinifoliae (Fitch))

HOST: Lodgepole pine, ornamental blue spruce

Infestations were again abundant in the western part of Region 1 this season. The scale was reported feeding heavily on lodgepole pine and ornamental blue spruce.

INSECT: Spruce Gall Aphid (Chermes cooleyi Gill)

HOST: Douglas-fir, Engelmann spruce, ornamental blue spruce

This aphid continues to persist throughout Region 1. Christmas tree farmers raising Douglas-fir trees near Rexford, Montana, have been plagued with yellowing of needles due to this aphid's feeding habits.

INSECT: Aphids

HOST: Alpine fir, grand fir

Populations have been unusually abundant throughout the forests of northern Idaho and on the Kootenai National Forest, Montana. The degree or extent of damage has not been determined.

INSECT: Pine Tip Moth (Rhyacionia sp.)

HOST: Ponderosa pine

Infestations of Rhyacionia sp. have persisted for many years in the Long Pine and Sioux Divisions of the Custer National Forest. Severe damage is concentrated in dense patches of ponderosa pine (Pinus ponderosa var. scopulorum Engelm.) reproduction; the affected trees are deformed and stunted from successive years of damage to the terminals by pine tip moth larvae.

INSECT: Pine Resin Midge (Retinodiplosis sp.)

HOST: Ponderosa pine

Retinodiplosis sp. was active in many parts of Region 1 in 1959. Large plantations covering several thousand acres in the Kaniksu National Forest, Idaho, suffered considerable damage to lateral branch tips. Some tree mortality from a combination of midge damage and other factors was observed.

U.S. FOREST SERVICE
REGION 4

Southern portion of
Intermountain Forest
and Range Experiment
Station Territory

